

“Observe Due Measure”:
The Gezer Inscription and Dividing
a Trip around the Sun^{*}

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*Observe due measure;
and best in all things is the right time and right amount.*

Hesiod, *Works and Days*,
694.¹

I. INTRODUCTION

A seven-line Northwest Semitic alphabetic text was discovered in 1909, in a pile of debris at the site identified as biblical Gezer. Ever since then, scholars have struggled to contextualize this inscription. Nearly every study has acknowledged that the text attempts to coordinate discrete periods of time with agricultural activities, but beyond this basic fact, interpretations of the text vary widely.²

* I would like to dedicate this article to Jo Ann Hackett on the occasion of the presentation of her Festschrift and in celebration of her own momentous trips around the sun. I am indebted to my colleague and friend Robert Jennings, who collaborated with me on the first foray into this topic at the annual meeting of the Society of Biblical Literature, Baltimore, MD, 24 November 2013 in the Hebrew Bible, History, and Archaeology Section, “Who is a Canaanite? Who isn’t a Canaanite! The Gezer Calendar, the Modern Palestinian Agricultural Calendar, and the End of the Essential Archaeological Subject.” I thank Dennis Pardee, Humphrey Hardy, Charles Huff, Eva Mroczek, Charles Otte, and Matthew Suriano for reading and commenting upon drafts of this article. I would also like to thank the editors, Jeremy Hutton and Aaron Rubin, for inviting me to contribute to this special volume.

1. Original: μέτρα φυλάσσεσθαι: καιρὸς δ’ ἐπὶ πᾶσιν ἄριστος. This translation emphasizes the temporal measurement sense of καιρὸς; Laura M. Slatkin, “Measuring Authority, Authoritative Measures: Hesiod’s *Works and Days*,” in *The Moral Authority of Nature*, ed. L. Daston and F. Vidal (Chicago: University of Chicago Press, 2002), 25–49.

2. William F. Albright (“The Gezer Calendar,” *BASOR* 92 [1943]: 21) suggested that the inscription was a school text intended to teach the sequence of agricultural tasks.

Current scholarly consensus identifies the text as a calendar.³ Nevertheless, questions persist as to whether this identification presses the boundaries of our definitions of *calendar* or *month*. For example, the text uses no known names for months. Moreover, the term used in the inscription for *month* does not neatly correspond to the known duration of the agricultural activities listed.⁴ For this reason, scholars have suggested that the text may have been written for bureaucrats or scribes rather than farmers.⁵ According to an older reading of the text, only eight months and not twelve are listed—certainly not a complete solar year.⁶ This reading, which persists among only a minority of scholars, has led to suggestions that the text is not a calendar at all, but perhaps a poem or a song.⁷ Other scholars have argued that since *calendar* is too narrow a term, the description *list of times* is more fitting.⁸

Judah B. Segal (“‘YRH’ in the Gezer ‘Calendar’,” *JSS* 7 [1962]: 220) pointed out that this suggestion makes little sense, that even a child growing up in an agricultural milieu would not need to be reminded of the cycle of activities punctuating his or her life.

3. To be specific, the current scholarly consensus is that the text divides a full agricultural cycle over a period of twelve equal *yrh* units, or “months.” See Segal, “‘YRH,’” 219.

4. Seth L. Sanders (“Writing and Early Iron Age Israel: Before National Scripts, Beyond Nations and States,” in *Literate Culture and Tenth-Century Canaan: The Tel Zayit Abecedary in Context*, ed. Ron E. Tappy and P. Kyle McCarter [Winona Lake, IN: Eisenbrauns, 2008], 100–102) describes the use of the putative term for *month* in the inscription as designating “loose” and “colloquial” time units, and not actual lunar months, concluding that the text could not have been functional for farmers.

5. This interpretation can be traced back to H. Vincent (“Un calendrier agricole israélite,” *RB* 6 [1909]: 243–69, esp. 262–64.), who interprets the text as the work of a kind of state or local authority regulating periods of agricultural activities.

6. M. Lidzbarski (“An Old Hebrew Calendar Inscription from Gezer,” *PEFQS* 41 [1909]: 26–29) interpreted the text as the work of a farmer who divided the entire year into eight periods. S. Yeivin (“הלוח החקלאי העברי,” *BJPES* 3 [1936]: 118–21) compared the text to the bas-relief of Zodiac signs from second century CE synagogues of the Upper Galilee which he restored to have eight periods of agricultural activity, like his reading of the Gezer text, some with two months and some of one month. Umberto Cassuto (“The Gezer Calendar and Its Historical-Religious Value,” in *Biblical and Oriental Studies by Umberto Cassuto*, trans. Israel Abrahams [Jerusalem: Magnes Press, 1973–1975], 2:211–28, esp. 226) challenges the interpretation of a conventional eight-period agricultural year by bringing evidence of a six-period year in t. Ta’an. 1:7, itself an interpretation of supposedly six periods in Gen 8:22.

7. This suggestion seems to have first been made by Johannes Lindblom, “Der Sogenannte Bauernkalender von Gezer,” *Acta Academiae Aboensis, Humaniora* 7 (1931): 1–25. A more recent argument along these lines is that of W. H. Shea, “The Song of Seedtime and Harvest from Gezer,” in *Verses in Ancient Near Eastern Prose*, ed. J. C. de Moor and W. G. E. Watson (Kevelaer: Butzon & Bercker; Neukirchen-Vluyn: Neukirchener Verlag, 1993), 243–50.

8. David Diringer (*Le iscrizioni antiche ebraiche palestinesi*, Pubblicazioni della R. Università degli Studi di Firenze, Facoltà di lettere e filosofia 3, vol. 2 [Florence: Le Monnier, 1934], 16) understood the inscription as a list of periods of activity, and thus

Previous scholarship has thus focused on defining the purpose or compositional context of the inscription. These studies assigned the text to conventional categories like *calendar* or *song*, concentrating on various features of the inscription, and then examined the possible practical applications for such texts.⁹ What I propose in this study is to postpone questions of the inscription’s genre, acknowledging that scholars have reached an impasse in addressing them. Before we try to mold the text to our own textual categories, we must first consider the priorities and strategies of the text itself, and consider its relationships with other sources across generic categories.

As I argue below, the theme and structure of the text of the Gezer inscription find parallels in biblical wisdom literature. Specifically, I will posit that the list of times in Eccl 3:2–8 can be read productively as a parallel to the text of the Gezer inscription. By examining the inscription’s division of an annual cycle and by comparing it to modern ethnographic data, I will argue that the inscription’s organization of time is a complex combination of two systems. These two important features of the inscription—its highly structured discourse and its complex organization of time—mitigate against interpreting the text as a practical document. Neither is the inscription to be understood as a mere exercise in writing, however. By observing its thematic and structural parallels and conducting an analysis of its organization of time, I will posit that the inscription is an intellectual exercise in observing due measure. The Gezer inscription, as a literary expression of the human project of searching for order in nature, should thus be understood broadly within the category of “wisdom literature.”

did not cover periods of inactivity. Similar lists exist; see the discussion below on the description of the annual agricultural cycle which excludes periods without activity in the Palestinian Talmud (y. Yebam. 15:2), but lacks specific terms for discrete time periods such as “month.” Oded Borowski (*Agriculture in Iron Age Israel* [Winona Lake, IN: Eisenbrauns, 1987], 31–44) dedicates a substantial section of his study to the Gezer inscription. He terms the text “The Gezer manual,” explaining that the text is “obviously a list of chores and not a calendar to tell time,” arguing that *yrh* does not necessarily designate a “calendrical month but rather ... a measure of time,” 32. André Lemaire’s conclusion (*Les écoles et la formation de la Bible dans l’ancien Israël*, OBO 39 [Fribourg: Éditions Universitaires; Göttingen: Vandenhoeck & Ruprecht, 1981], 11) does not see the text as fitting our definition of a calendar, and instead identifies it as “list of the names of months.”

9. A minority of philological studies have bypassed issues of the inscription’s compositional context or purpose by addressing questions of the language, an issue which is not directly related to the present study. Studies of the language of the text are, however, equally important, and can illuminate the historical and cultural context of the inscription. For the most recent example of such a study, see Dennis Pardee, “A Brief Case for the Language of the ‘Gezer Calendar’ as Phoenician,” in *Linguistic Studies in Phoenician*, ed. Robert D. Holmstedt and Aaron Schade (Winona Lake, IN: Eisenbrauns, 2013), 226–46.

II. THE MEASUREMENT OF TIME AS AN INTELLECTUAL TASK

R. A. S. Macalister, the archaeologist attributed with the inscription's discovery, noted the difficulty in assigning the text to a category of ancient literary production: "There is nothing historical, votive, epistolary, talismanic, or magical in the inscription. It is of too formal a character to be classed with the random scribbles by which a writer tries the capacity of a doubtful pen."¹⁰ And while it is true that the inscription's discourse seems to fit none of those literary categories, perhaps Macalister was too hasty (not to mention judgmental!) in his conclusion that "[t]he tablet was prepared by the writer simply to shew off his own attainments... [The writer] was a person of a limited range of ideas, but possessed the unusual accomplishment of writing."¹¹ Does the discourse of the text in fact show that the text's author "was a person of a limited range of ideas"? What of the text's formal features or content supports such an argument? Aside from its terseness and formulaic nature, a description which also applies to "high" Northwest Semitic literature, there is little to defend this claim. In fact, as this study will show, the text of the Gezer inscription demonstrates a high degree of structure and a complex organization of time. Its topic of discourse itself places it firmly within the broad ancient literary category of knowledge production. Indeed, knowing the *right time* for human action is a central value reflected in biblical wisdom literature.

In biblical wisdom texts, the important skill of calculating and ordering time does not result in the production of calendars or time-keeping systems. Rather this central value manifests itself in reflective discourse. The literature systematically examines the role of human action in the face of the unfolding of events through time. For example, harvest-time arrives when the crops are ready, an occurrence out of direct human control. Harvesting the crop, however, is a willed action. Determining the happy intersection of action and occurrence is an exercise in skill, as expressed in the following example from Proverbs:

אִגֵּר בְּקִיץ בֶּן מִשְׁכֵּל נִרְדָּם בְּקַצִּיר בֶּן מִבִּישׁ:

He who stores up in the summer is a sensible son,
he who sleeps through the harvest is disappointing one. (Prov 10:5)

As our own saying goes, *timing is everything*. Likewise, the third chapter of Ecclesiastes explores the challenge of calculating "the right time" for the many different experiences of life in fourteen highly formulaic lines, "A time for X, a time for Y," where X and Y are apparently antithetical experiences like *crying* and *laughing*.¹² The speaker then breaks the formulaic verse, shifting into prose analysis. What follows radically undercuts the preceding methodical presenta-

10. R. A. S. Macalister, *The Excavation of Gezer, 1902–1905 and 1907–1909* (London: John Murray, 1912), 2:27.

11. Ibid.

12. Eccl 3:2–8.

tion of human experience in its temporal frame, declaiming the futile attempt of those fourteen verses to systematize that which humans ultimately cannot predict:

אֶת־הַכֹּל עָשָׂה יְפֶה בְּעֵתוֹ
גַּם אֶת־הָעֹלָם נָתַן בְּלִבָּם
מִבְּלִי אֲשֶׁר לֹא־יִמָּצֵא הָאָדָם אֶת־הַמַּעֲשֶׂה
אֲשֶׁר־עָשָׂה הָאֱלֹהִים מֵרֵאשִׁית וְעַד־סוֹף:

(God) does everything fittingly in its time,
moreover He has placed the task¹³ in (mortals') minds,
without man grasping everything God
has made happen from the beginning until the end. (Eccl 3:11)

Biblical wisdom literature grapples with the human search for order in the world. Finding order in time is an important part of that project. So too in early Greek poetry. In Hesiod's *Works and Days*, the mortal human experience is determined by its finite quality, and thus is framed temporally.¹⁴ For Hesiod the farmer in particular was a convenient trope to explore the idea of ordering human experience vis-à-vis nature.¹⁵ Indeed, the human endeavor of dividing time is a profoundly meaningful activity in the expression and structuring of experience.¹⁶ At the same time, however, it is a project of an arbitrary nature. The many different, experientially determined, and never-exact ways of measuring time can attest to this. Perhaps it is this paradox that the speaker in Ecclesiastes

13. This translation follows an emendation of the MT from העולם, 'eternity' or 'the world', to העמל, 'the task', presuming scribal metathesis of the *mem* and the *lamed* and emended following a comparison to similar wording in Eccl 8:17. See Michael V. Fox, *A Time to Tear Down and a Time to Build Up: A Rereading of Ecclesiastes* (Grand Rapids, MI: Eerdmans, 1999), 211. Without the emendation, one could translate the phrase as follows: "moreover, he has placed (a sense of) the future in (mortals') minds." When read with the emendation to העמל, however, the verse supports the argument that biblical wisdom literature understands the challenge to find temporal order in the world as an intellectual *task* that is central to the human experience.

14. According to Slatkin ("Measuring Authority," 28), both the *Iliad* and *Works and Days* express the strife of human experience as the endless task of measurement and division. I thank Bruce Rosenstock for pointing me to this study.

15. Slatkin ("Measuring Authority," 28) argues that the discourse on farming and proper timing in *Works and Days* is not really about farming: "The poem uses the farmer to think with because it is through farming that humans are most immersed in natural processes, and the farmer is the human type who most obviously must accord his behavior with the exigencies and contingencies of nature's patterns."

16. According to Paul Ricoeur ("Narrated Time," *Philosophy Today* 29 [1985]: 259–72, esp. 263), the human conception of *time* involves paradoxical notions of nature, or cosmic time, on the one hand, and human experience on the other. For the lifetime of any individual is minuscule and insignificant when considered in the grand scheme, yet it is during this brief period in which everything is meaningful for the individual.

wishes to underscore in the larger discussion of fundamental challenges to the human production of knowledge.

Like biblical wisdom literature and Hesiod's *Works and Days*, the Gezer inscription tasks itself with giving order to time. As will be discussed below, the prosody of the inscription is reminiscent of the list of times in Eccl 3. Like the Gezer inscription, biblical wisdom literature demonstrates esteem for highly structured discourse. There is, however, an important distinction to be made. Biblical wisdom literature and early Greek poetry offer reflections upon the activity of temporally ordering experience in the world. The Gezer inscription, on the other hand, is not self-reflective. The discourse of the inscription merely participates in the intellectual activity of ordering experience. The question thus arises: Must systematizing experience in the world be self-reflective to be considered *wisdom*? Perhaps non-self-reflective forms like a collection of sayings, an abecedar, and even the Gezer inscription should be included in this category as well.¹⁷ As the following analyses of the inscription's formal organization and understanding of time will demonstrate, although the text may seem simple at first blush, it is surprisingly complex.

III. THE GEZER INSCRIPTION AND ITS FORMAL ORGANIZATION

A. TRANSCRIPTION¹⁸:

1. y}rḥw'sp.yrḥwz
2. r'yṛḥwlqš
3. .yrḥ'šdpšt
4. yrḥqsrš'rm
5. yrḥqsrwkl
6. yrḥwzmr
7. yrḥqš

Edge: 'by[...

17. See Sanders, "Writing," 100–103, and esp. 101, on his interpretation of the Tel Zayit abecedar and the Gezer inscription. Sanders understands these texts against the grain of the conventional interpretation, which categorizes them as tools for a growing bureaucracy. Instead, Sanders sees the Tel Zayit abecedar and the Gezer inscription as examples of the writing down of traditional literature. He calls this phenomenon "literizing," borrowing from the work of Natalie Z. Davis, who makes a similar claim for collections of folk wisdom in early Modern France (*Society and Culture in Early Modern France* [Stanford: Stanford University Press, 1975], 227–67).

18. Since the inscription itself only provides three vertical lines (which have been interpreted as word or phrase dividers) in the first three lines of the text, I have not indicated word boundaries with spaces in the transcription.

B. FORMAL ANALYSIS¹⁹

Each entry maintains a strict formula comprised of two elements, which aids the division of the text into eight discrete units. The first element consists of a form of *yrh*.²⁰ The second element consists of an activity.²¹ There seems to be a strict distribution of the combination of the varieties of the first and second elements of the formula.²² Beyond the micro-structure of the individual entries, a two-part macro-structure of four lines each can be discerned for the entire text.²³

The first section encompasses activities that can be described as those which involve the preparation and manipulation of the ground. The second section encompasses the forcible removal of produce from the plants themselves. While at least one of the activities of the first section can be designated as a “harvest,” that is, the “ingathering” of some fruits, olives, or nuts, these activities do not involve the removal of produce *from the plants*. Rather, it is the ground itself that is the locus of the activities in the first section.

19. This analysis follows the semantic and morpho-syntactic interpretation reflected in the given translation, which generally follows Pardee, “Brief Case,” 236–40. Deviations are noted and explained. The translation here reflects an interpretation of the *wāw* following the lexeme *yrh* in lines 1 (twice), 2 (once), and 6 (once) as denoting the 3.m.sg. pronominal suffix on the suffixed form of the m.pl. noun */yarah-/* or the suffixed form of the dual, */yarah-ay-/*. Although the consonantal representation cannot distinguish between a plural or dual of *yrh*, in a text such as this which gives a particular order to time in discrete, measured units, one would expect the form to represent the dual unless otherwise indicated numerically.

20. This first element has two varieties. In its first variety it surfaces orthographically as <YRH>, which is understood here to be its singular form with a proleptic 3.m.sg. pronominal suffix whose referent is the activity noted in the second element of the line. This suffix is not marked orthographically. In its second variety the form of *yrh* surfaces orthographically as <YRH̄W>, understood here to be either a plural or dual form with a semantically identical pronominal suffix as in the first variety. However, the plural/dual suffixed form of the noun is morphosyntactically and phonologically distinct from the singular and thus is marked orthographically with a *wāw*.

21. This second element has two possible varieties. In the first variety, it is a single lexeme, understood to be either an infinitive (entries 1, 2, 3, and 7) or a m.sg. noun (8). In the second variety, there are two lexical items, either a construct phrase (entries 4 and 5) or a conjunctive phrase (entry 6).

22. The second variety of the first element, *yrhw*, only occurs with the first variety of the second element, a single lexeme, and never with the second variety of the second element, a two noun phrase. The singular *yrh* only occurs with a single lexeme in the second element in the final entry of the text, *yrh qš*.

23. Shea observed a tri-partite structure in his analysis of the text as a song (“Song,” 244–45).

I. Manipulation of the Ground

- | | |
|-----------------------|-------------------------------|
| 1) <i>yrhw 'sp</i> | its (two) months: ingathering |
| 2) <i>yrhw zr'</i> | its (two) months: sowing |
| 3) <i>yrhw lqš</i> | its (two) months: late sowing |
| 4) <i>yrh 'šd pšt</i> | its month: hoeing weeds |

II. Produce Removal from Plants

- | | |
|------------------------|---|
| 5) <i>yrh qsr š'rm</i> | its month: barley harvest |
| 6) <i>yrh qsr wkl</i> | its month: (wheat) harvest and its completion |
| 7) <i>yrhw zmr</i> | its (two) months: (vine) pruning |
| 8) <i>yrh qš</i> | its month: summer (fruit) |

The first section outlines activities which can be seen as pre-growth preparation of the earth, each activity building upon the next: *'sp*, collecting what has fallen to the ground;²⁴ *zr'*, sowing and general preparation of the ground for the growth of plants; *lqš*, late sowing and tending to the maturation of plants in the soil; and finally, the removal of weeds, an activity which both prepares the ground and manipulates plants for use in the production of hay.²⁵ By contrast,

24. The activity designated *'sp* 'ingathering', requires explanation for its thematic inclusion in a group of activities which I have identified with the preparation of the ground. As Pardee notes ("Brief Case," 237), this ingathering of fruits, olives, and possibly some nut varieties is distinguished from the activities of *qsr* '[grain] harvest', *zmr* 'pruning', and the plucking involved in harvesting the *qš* 'summer [fruit]', in that the olives and the like are gathered from the ground, whereas the others are actively removed from the plant. Dalman, who likewise translates "in-gathering," relates the activities listed to his knowledge of modern Palestinian agricultural activities. He explains the activity *'sp* not as harvest, but rather as the gathering of fruit "to the house" ("Notes on the Old Hebrew Calendar-Inscription from Gezer," *PEFQS* 41 [1909]: 118–19). The verb \sqrt{SP} , as it is used in Biblical Hebrew, can refer generally to the ingathering of that which lies on the ground (Exod 23:10), specifically the activity temporally opposite to the first harvest of grain, i.e., the ingathering of produce at the end of the year (Exod 23:16), an activity which sequentially follows *zmr* of vineyards (Lev 25:3). While the verb \sqrt{ZR} 'to sow', is found most frequently alongside \sqrt{QSR} 'to harvest [grain]', (twelve times), it is also found alongside \sqrt{SP} 'to gather', (six times). It seems that \sqrt{SP} is understood to be an activity, like \sqrt{QSR} , which follows \sqrt{ZR} . But unlike \sqrt{QSR} which is the first activity in attending to produce, \sqrt{SP} denotes the final step. Thus it follows the eighth entry on the Gezer inscription, *yrh qš*, 'its month: summer (fruit)', resuming the annual cycle and initiating pre-growth activities.

25. S. Talmon's study of the Gezer inscription ("The Gezer Calendar and the Seasonal Cycle of Ancient Canaan," *JAOS* 83 [1963]: 177–87) cast doubt on whether *pšt* should be translated as 'flax', and instead, comparing to an agricultural activity sequence found in the Dead Sea Scrolls (1QS 10:7), argues that *pšt* of the Gezer inscription is equivalent to *dš* 'grass' in the sequence in 1QS. Talmon argues that *pšt* need not be the flax for linen production, but could be "verdurous growth." Borowski (*Agriculture*, 34–35) points out problems in interpreting the activity *'šd pšt* as 'harvesting flax with a hoe', and suggests the reading "hoeing weeds," i.e., the removal of weeds and its preparation as hay. Here he follows Cassuto ("Gezer Calendar," 44) and Talmon ("Gezer Calendar," 187) in their interpretation of *pšt* as a f.sg. substantive meaning 'weeds'. He explains that in modern practice, flax is sown in December and harvested in July. Even in ancient

the second section outlines activities of post-growth activity, moving from grain to fruit. The activities of this second section all relate to the forceful removal of produce from plants: the first harvest of grain, the barley harvest, highlights the celebrated first forceful removal of produce from plants;²⁶ *qsr*, reaping and harvesting grain; *zmr*, pruning the vine and harvesting of some grapes;²⁷ and plucking the *qs*, the summer (fruit). From this perspective, the text is highly structured, both at the micro-level of individual entries and at the macro-level of the organization of activities.

In fact, its micro-structure is remarkably similar to the list of times in Ecclesiastes. In Eccl 3:2–8 the basic formula is comprised of two elements: the first element is עת, *time period*, and the second element is an activity, most frequently an infinitive construct, with little variation (see fig. 1).

There are a few differences between the list found in the Gezer inscription and Eccl 3:2–8 that are worth mentioning. The first difference is that the Gezer text has the full formula of the two elements—the term for time and the activity phrase—only once in a given entry. On the other hand, the list in Ecclesiastes has the full formula twice in each entry. In the list in Ecclesiastes, the activity phrase of the second iteration is always antithetical to its counterpart in the first iteration.²⁸

times it would not have been harvested so early in the year in Gezer. Recently Aaron Koller (“Ancient Hebrew מעצד and עצד in the Gezer Calendar,” *JNES* 72 [2013]: 179–93) argued that since flax is not harvested by cutting, but rather by uprooting the plant, the term *ʿsd* ‘chopping’ should be reconsidered. Koller’s solution lies not in the reanalysis of *pšt*, as the previously discussed scholars have suggested, but in a rereading of *ʿsd* as etymological *ḥṣd* ‘to reap’. This is a brilliant solution to the issue of translating *chopping* for the harvesting of flax when flax is not harvested by cutting. Nevertheless, the fact remains that the entry on the inscription falls at a time when flax would not have been harvested, and so the reanalysis of *pšt* as ‘weeds’ appears to be a simpler solution.

26. Talmon, “Gezer Calendar,” 184.

27. The term *zmr* can refer to both pruning and harvesting of certain varieties of grapes, and seems to be used to designate the cutting of various parts of the plant, including the removal of grapes with a sharp object. Cassuto (“Gezer Calendar,” 217) interpreted the term as referring specifically to the grape harvest in this case, because in his view, the pruning would have occurred earlier. Borowski (*Agriculture*, 37–38) likewise argues that *√ZMR* means both ‘to prune’ and ‘to harvest [grapes]’ because the basic meaning of the root is ‘to cut’, and the same tool (מזמרה) which is used to care for the vine is also used to cut the grapes from the plant. He adds that the term in Gen 43:11, and particularly in Song 2:12, עת הזמיר, can be interpreted as referring specifically to the grape harvest. Pardee (“Brief Case,” 240) takes a conservative approach, concluding that the term is ambiguous here, and could refer to care of the vine for appropriate sun exposure or to the harvesting of certain varieties which would have been ready before those in the subsequent period, *qs* ‘summer [fruit]’.

28. One can be assured that the two iterations form a single entry, as these two phrases are joined by a *wāw* conjunction. These conjunctions only occur between iterations of the formula and do not occur between entries.

Figure 1. Comparison of Entries in the Gezer Inscription and in Eccl 3:2–8

Formula	Term for time	Activity Phrase
Gezer Inscription	<i>yrh</i>	infinitive + noun
		noun + noun
		noun
Eccl 3:2–8	<i>yrhw</i>	infinitive
		/I/ + infinitive
		/I/ + infinitive + noun
	עת	infinitive
		infinitive + noun
		noun

The second difference is that although the term used in the first element of the formula in Ecclesiastes, עת, refers to a period of occurrence as does *yrh*, it does not designate a specific quantity of time. One could argue, as some have, that *yrh* in its usage in this text does not necessarily designate a month of the lunar calendar whose boundaries are marked by the observation of the new moon.²⁹ Indeed, the term is used in Biblical Hebrew to designate a period of days corresponding to a lunar month but not beginning with a new moon.³⁰ Nevertheless, *yrh*, unlike עת, is a quantifiable period of time, otherwise the phrase ירח ימים would be meaningless.

The final distinction I would like to point out is one of context. The list in the Gezer inscription has no written context informing its interpretation. By contrast, the list in Ecclesiastes is framed by reflective discourse. There is an introduction which identifies the theme unifying the various periods of activity,³¹ and there is a conclusion which situates the list in the context of the speaker's point about the search for meaning in one's actions and complicates the human endeavor to identify the right time for action.³²

In spite of these differences, the formal and thematic similarities between the two texts are remarkable. Perhaps there was a larger intellectual tradition, preserved in these two texts, of expressing the organization of time in such a fashion.

29. See Sanders, "Writing," 101; Borowski, *Agriculture*, 32.

30. The term ירח ימים is apparently used to designate a period of a month, though not necessarily beginning at the appearance of the new moon. See its usage in Deut 21:13; 2 Kgs 15:13.

31. Eccl 3:1.

32. Eccl 3:9–14.

IV. AGRICULTURAL “CALENDARS”: OBSERVE DUE MEASURE?

As we have seen, the text of the inscription is highly structured and finds a parallel in the list of times in Eccl 3:2–8. Some may conclude that the text is thus more concerned with expressing meaning through prosody than through the systematic organization of time. As a result, scholars express divergent opinions on the genre of the inscription: it is either primarily a calendar or primarily a song or poem. We should, however, keep in mind that these categories are not native to the text; they arise out of our own textual categories and expectations.

Comparing the Gezer inscription to the list of times in Eccl 3:2–8, we observe a significant difference in their respective organization of time, which I have noted in the previous section. The list of times in Ecclesiastes is organized by *ny*, a term for unbounded periods of time. By contrast, the Gezer inscription is organized by *yrh*, a term for bounded, quantifiable durations. The use of *yrh* in the text’s organization of time, a discrete time period lasting 28–30 days,³³ is the crux for interpreting the inscription as a calendar or some other kind of literary work. If *yrh* does indeed mark bounded units of time, which is a logical conclusion given the semantics of the term and its use in Biblical Hebrew, then it makes sense that these units of time are sequential and intend to divide up a longer period, like a year. The text itself brings forth evidence that the *yrh* entries are listed sequentially because each entry is made to correspond to supposedly sequential agricultural activities. For example, it is well known that in the seasonal agricultural cycle, sowing must precede the harvest. This fact establishes the basic correspondence of the Gezer inscription’s sequence of entries to the agricultural cycle, and the remainder can be filled in from ancient textual evidence and modern agricultural practice in the region.

Yet it is this very feature of the text, the correspondence of *yrh* entries to sequential activities in the annual agricultural cycle, which challenges its interpretation as a calendar. This is because the duration of the agricultural activities indicated do not correspond neatly to 28–30 day periods. Nor does any activity correspond neatly to two such periods. Borowski includes several charts of modern sowing and harvesting practices in Israel, showing that they loosely align with the text of the Gezer inscription, but also that they do not neatly correspond to the listed periods in the inscription. Some crops are sown or harvested for more or less than the period indicated on the Gezer inscription.³⁴ This fact is not surprising. The commencement and conclusion of an agricultural activity, while based upon human action, is timed to give the best results, and thus is beyond human control. It is unlikely that the harvest of any given crop will be ready at the same appointed day every year, and climate conditions, which change from year to year, yield varying results at varying times. As a result, *any*

33. And thus allowing the interpretation of the text’s enumeration of twelve *yrh*-periods (four single *yrh*-periods and four double *yrh*-periods), five to eleven days shy of a full solar cycle, depending on how the lunar month is counted.

34. See tables 2 and 3 in Borowski, *Agriculture*, 34, 37.

attempt to divide the agricultural cycle into discrete, bounded periods is an inexact science—despite any pretense of precision.

Modern ethnographic data from the region on dividing the year attest to the same phenomenon. The activities of the agricultural cycle do not fit equal, discrete periods. When they are made to fit such a model, they rarely correspond to 28–30 day periods. Following an apparently common appellation for the year, *as-sabi* ‘*ḥamsīnāt*’ ‘the seven fifties,’ Cana’an’s 1913 study of the rural Palestinian calendar divided the year into seven fifty-day periods.³⁵ Cana’an’s calendar identifies the commencement and conclusion of each period by both agricultural activities as well as seasonal and religious festivals.³⁶

Likewise, a recent ethnography published by Ali Qleibo on the Palestinian agricultural calendar records a seven-period annual cycle.³⁷ According to Qleibo’s informant, the periods of agricultural activity are loosely demarcated and are dependent on unpredictable events: the first rain, the viability of the land for sowing, the beginning of the grain harvest, etc. Seasonal and religious festivals are indicated as signposts for the general beginning and ends of periods, but they by no means determine the commencement or conclusion of activities.³⁸ The only fixed period are those without any major agricultural activities: the winter periods. The olive harvest, which begins the agricultural cycle according to Qleibo’s ethnography, is followed by the period characterized by sowing and additional preparation of the ground, and then three periods of inactivity follow. These are the “forty coldest days,” followed by the “fifty cold days,” and concluded by the “fifty dusty days.”³⁹ The representation of Qleibo’s modern Palestinian agricultural cycle (fig. 2) demonstrates a combination of two systems of keeping time. Qleibo’s list of times is already a combination of two systems even without accommodating it to a calendar of fixed, equal units such as “months.” The first system is one that is fluctuating and unbounded, wholly dependent on unpredictable and uncontrollable factors. This first system, the first two and last two periods of Qleibo’s calendar, frames the second system: three periods which are quantified, bounded, and conventional. After all, who can decide whether any given day in the forty coldest days is really colder than any given day in the period of the fifty cold days? Rather, the quantification of these periods and their designations as *coldest*, *cold*, and *dusty* are a matter of conventional characterization and not actual experience.

35. Tawfiq Cana’an, “Der Kalender des palästinensischen Fellachen,” *ZDPV* 36 (1913): 272.

36. Cana’an’s seven periods, in sequential order, with the year beginning in Spring: Easter-Pentecost; Pentecost-Vintage; Vintage-Olive harvest; Olive harvest-Lod-fest; Lod-fest-Christmas; Christmas-Lent; Lent-Easter (“Der Kalender,” 272).

37. Ali H. Qleibo, “Canaanites, Christians, and the Palestinian Agricultural Calendar,” *Kyoto Bulletin of Islamic Area Studies* 3 (2009): 9–20.

38. Qleibo, “Canaanites,” 12–15.

39. *Ibid.*

Figure 2. Schematization of the Modern Palestinian Agricultural Cycle according to Qleibo

Olive harvest (~ 51 days)	Sowing (~ 52 days)	40 Cold- est Days	50 Cold Days	50 Dusty Days	Wheat Har- vest (varies)	Fruit Har- vest (varies)
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Approximate correspondence to Gregorian months:

Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
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Figure 3.
Schematization of y. Yebam. 15:2 with absent periods of ground preparation and inactivity

barley harvest	wheat harvest	vintage	olive harvest	ground preparation	pre-harvest inactivity
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What would a single-system calendar of the agricultural cycle look like? We find an example in the Jerusalem Talmud cited as a teaching of the house of Shammai (y. Yebam. 15:2).

והלא כל השנה כולה קציר
... יצא קציר שעורים ונכנס קציר חטים
יצא קציר ונכנס בציר
יצא בציר ונכנס מסיק
נמצאת כל השנה כולה קציר

Is not the whole year [the time of] harvest?
... When the barley harvest ends, the wheat harvest begins
when the [wheat] harvest is over, the vintage begins
when the vintage ends, the olive harvest begins.
It happens that the entire year is [the time of] harvest!

This calendar is essentially a list of agricultural activities in sequential order. No duration is specified for any activity; each subsequent activity begins when the previous ends. As the frame itself makes clear, this depiction of the agricultural cycle is entirely focused on food production: והלא כל השנה כולה קציר... נמצאת כל השנה כולה קציר. 'Is not the whole year [the time of] harvest? It happens that the entire year is [the time of] harvest!' It follows, then, that large periods of the year are conspicuously absent from this list: the preparation of the ground and the long periods of agricultural inactivity in the winter. It is a convenient feature of this calendar's structure, or perhaps a deliberate one, that the missing periods

V. THE ORGANIZATION OF TIME IN THE GEZER INSCRIPTION: OBSERVE *DEUX* MEASURES

By contrast to the single-system division of time in y. Yebam. 15:2, in the text of the Gezer inscription we observe an attempt to accommodate two independent and exclusive systems of organizing time. On the one hand, the year of the inscription is divided into heterogenous periods of duration which are characterized by their dominant agricultural activity: collecting fallen produce, sowing, late sowing, hoeing weeds, harvesting grain, caring for the vintage, and harvesting fruit. These are periods whose temporal boundaries are imprecise and are determined by fluctuating and unpredictable seasonal climate conditions. Moreover, all of these periods are qualitatively different from one another. One could identify such a description of time as qualitative: it describes the quality of the duration and not its quantity (fig. 4).

Figure 4. Qualitative System: Eight Periods of Agricultural Activity⁴⁰

collecting [olives and other fallen produce]	sowing	late sow- ing	hoeing weeds	harvesting barley	harvesting [wheat] and its comple- tion	pruning [the vine]	[plucking] summer [fruit]
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Figure 5. Quantitative System: Twelve *yrh* Periods

<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>	<i>yrh</i>
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Figure 6. Combination of the Two Systems in the Gezer Inscription

Its two <i>yrh</i> periods: collecting [olives etc.]	Its two <i>yrh</i> periods: sowing	Its two <i>yrh</i> periods: late sowing	Its one <i>yrh</i> period: hoeing weeds	Its one <i>yrh</i> period: harvest- ing barley	Its one <i>yrh</i> period: harvest- ing [wheat] and its comple- tion	Its two <i>yrh</i> periods: pruning [the vine]	Its one <i>yrh</i> period: [pluck- ing] sum- mer [fruit]
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40. The qualitative system is schematized, but the chart is not representative of the respective duration of each period.

On the other hand, each period of the Gezer inscription is designated by the same term, *yrh*, a root which in its most concrete sense seems to designate *moon* and in a distinct lexeme of the same root comes to designate a full cycle of the moon, or *month*.⁴¹ The term *yrh* designates a quantifiable period of time, whether or not it is used in this text to mark periods of time that begin with the new moon or not.⁴² Moreover, the term is used without discrimination to mark each quantity of the period it designates, probably 29–30 days.⁴³ That is to say, each *yrh* occurs in succession without respect to the activities of those days; it is its quantity which determines its identification as *yrh* and nothing more (fig. 5).

The result of accommodating two systems of organizing time, a qualitative system and a quantitative system, is a single calendar with little functional use (fig. 6).⁴⁴ It is an inaccurate representation of the duration of agricultural activities, since each activity is only given one of two options for duration—a single *yrh* period or a double *yrh* period. The inscription only indicates each of these single or double *yrh* periods for a single activity, and does not allow for shorter or longer periods. The designation of a single activity for each period excludes other activities which may occur at the same time. Moreover, unlike the previously discussed calendar from Yebamot, the duration of the activity is given (*yrh* or *yrhw*), but it is not clear when the activity commences or concludes. Does the activity start at the beginning of a new period? Does it occur sometime during the period? These questions remain because the actual designation of times is unclear.

The text is thus not prescriptive for farmers, as their activities would be determined by inexact and fluctuating factors which are external to the division of the year into *yrh* periods. For this reason, the text is also not informative for bureaucrats who need to know the periods of these activities for taxation or accounting purposes.⁴⁵ Its function as a school-text cannot be evaluated, since there are no extant examples of school-texts from the region in the Iron Age.

41. From vocalized traditions of Semitic we can reconstruct PS **yariḥ* for ‘moon’ but PS **yarḥ* for a full moon cycle, or a ‘month.’

42. According to the now conventional morphological interpretation of the four occurrences of *yrhw* as meaning ‘its two months,’ the inscription divides the year into eight periods of twelve *yrh*, ‘moon-units,’ i.e., lunar months.

43. The synodic period, that is, the full lunar rotation around the earth as observed from earth, is 29.5 days. This period of time is the same irrespective of the phase from which the counting begins. A *yrh* is a measure of the synodic period. Since measurement units like *months* tend to quantify whole days and not half days in their use in calendars, the period of a *yrh* would need to alternate between 29 and 30 days to preserve an accurate accounting of the synodic period.

44. Not to mention the fact that uncorrected, neither twelve periods of complete lunar rotations (approximately 354 days) do not add up to a complete rotation of the earth around the sun (approximately 365 days). Sanders aptly sums up this fact of the Gezer “calendar” when he remarks that “after a few decades of twelve 30-day months, the ‘month of summer fruit’ would come solidly in the middle of winter” (“Writing,” 101).

45. Contra Talmon, “Gezer Calendar,” 177.

The themes or content of a text like the Gezer inscription likely had as much a place in education as did instructions and conventional sayings. It is, however, impossible to know whether or not the Gezer inscription *itself* was used in such a context.⁴⁶

In spite of its apparent lack of practical application, the Gezer inscription is not entirely outside of our concept of a calendar. The Gezer inscription represents a complex combination of two systems of organizing time. In this sense, the calendar is not unlike the previously discussed articulations of the modern Palestinian agricultural calendar, wherein either the ethnographer or the informant accommodates the agricultural cycle of activities to quantifiable units. Both the ancient and modern experience of explaining the division of the year in such a way underscores a tension between the intuited knowledge of physical experience and a more reasoned knowledge gained through an intellectual endeavor. Knowledge of the agricultural cycle is an intuitive knowledge that comes from experience. One knows from experience how to appropriately time their activities for every season. The division of time into quantifiable units, on the other hand, is reasoned knowledge. The combination of these two systems of organizing time is a complicated project. This kind of project could be understood as systematizing the intuitive experience of the agricultural cycle: an intellectualizing of common sense. It could be seen from the other direction as well, as expressing the reasoned division of time in vernacular seasonal activities. It is not, however, a project of dividing time that finds a practical use.

If the Gezer inscription was not meant to have practical use, as I have argued here, then what *was* its purpose? I would argue against Macalister's explanation that the text was an uninspired display of literacy, and instead find its purpose as an intellectual exercise in observing due measure. This argument can be supported by its complex yet impractical division of a complete cycle of agricultural activities into quantifiable units as well as by its similarity to the list of times in Eccl 3:2–8. As we have seen, the Gezer inscription is a text with highly structured discourse whose project is a systematic division of the annual cycle. Its organization of time combines both experiential knowledge—the lived agricultural cycle—and technical knowledge—the division of time into discrete, bounded periods with specialized terminology. As such, the Gezer inscription should be considered alongside other intellectual works which transmit and transform experiential and technical knowledge through a written medium.

46. Lemaire argues that the Gezer inscription, along with abecedaries and other texts like single-word inscriptions, should be grouped together as examples of literacy training. *Les écoles*, 7–36. Speaking only of the Gezer inscription, however, such a classification prejudices the laconic discourse of text. As the arguments presented here have shown, the minimalism of the text's structure should not condemn it to the category of practice or study texts for beginners.

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